

FACT SHEET FOR NPDES PERMIT NO. WA0040843
Port of Kalama

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) permits, which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of RCW 90.48 which defines the Department of Ecology's (the Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), and water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

This fact sheet has been reviewed by the Permittee and errors in fact have been corrected. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments (Appendix D) will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments.

GENERAL INFORMATION

<u>Applicant:</u>	Port of Kalama
<u>Facility Name and Address:</u>	Domestic Wastewater Treatment Facility P.O. Box 70 Kalama, Washington 98625-0070
<u>Type of Treatment:</u>	Flow equalization followed by extended air activated sludge secondary treatment. Disinfection is by ultraviolet light. Solids are stored in an aerated chamber prior to disposal by a septage hauler.
<u>Discharge Location:</u>	Discharge is at river mile 72.2 on the Columbia River. Latitude: 46° 2' 30" N. Longitude: 122° 52' 28" W.
<u>Water Body ID Number:</u>	WA-CR-101

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

History

This facility serves the domestic wastewater needs of BHP Steel Corporation, MG Industries, and as yet unknown other businesses that may locate in the same general area.

Collection System Status

BHP Steel has constructed five or six septic tank effluent pump (STEP) stations around their facility to collect and transport domestic wastewater to the port treatment facility. Force mains are combined prior to exiting BHP property and entering the wastewater treatment facility. MG Industries has a single STEP tank.

Treatment Processes

Designed for a maximum monthly flow of 20,000 gallons per day, the port treatment facility includes a coarse bar screen and comminutor prior to the wastewater entering an equalization basin to even the flows to the secondary system. The treatment system consists of an extended air activated sludge process, secondary clarifier, and ultraviolet disinfection.

Discharge Outfall

Secondary treated and disinfected effluent is combined with the treated effluent from BHP and discharged via a diffuser into the Columbia River. The 6-inch diameter diffuser pipe is attached to the downstream side of one of the piles supporting the wharf approximately 250 feet from shore. Four horizontal diffuser ports with tide-flex check valves are spaced on 5-foot centers starting 12.5 feet below ordinary low water level. The vertical orientation and location maximizes dilution of the effluent.

Residual Solids

The treatment facility removes large solids at the headworks, primarily rags, and at the clarifier, in addition to incidental solids (rags, scum, and other debris), removed as part of the routine maintenance of the equipment. Screenings and incidental solids are drained and disposed of as solid waste at the local landfill. Solids wasted from the clarifier are held in an aerated holding tank until they are removed by a septage hauler for disposal.

WASTEWATER CHARACTERIZATION

The predicted annual average concentrations of pollutants in the discharge were reported in the NPDES application as follows:

<u>Parameter</u>	<u>Concentration</u>
BOD ₅	20 mg/L
Total Suspended Solids	20 mg/L
Fecal Coliform	<200 colonies per 100 mls
Ammonia (as N)	15 mg/L

SEPA COMPLIANCE

A Mitigated Determination of Non-significance was issued on October 12, 1994.

PROPOSED PERMIT LIMITATIONS AND CONDITIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology or water quality based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC) or Sediment Quality Standards (Chapter 173-204 WAC). The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

DESIGN CRITERIA

In accordance with Washington Administrative Code (WAC) 173-220-130(1)(a), effluent limitations shall not be less stringent than those based upon the design criteria for the facility, which are contained in approved engineering plans, reports, or approved revisions. Also, in accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the Revised March 1996 Engineering Report for Domestic Wastewater Treatment Facility prepared by Parametrix, Inc. and are as follows:

Monthly average flow (max. month):	0.020 mgd
Monthly average dry weather flow:	0.020 mgd
Monthly average wet weather flow:	0.020 mgd
Instantaneous peak flow:	does not apply, facility has flow equalization
BOD influent loading:	40 lbs/day
TSS influent loading:	40 lbs/day

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD₅, and TSS are taken from Chapter 173-221 WAC are:

<u>pH</u> :	shall be within the range of 6 to 9 standard units.
<u>Fecal Coliform Bacteria</u> :	Monthly Geometric Mean = 200 colonies/100ml Weekly Geometric Mean = 400 colonies/100ml
<u>BOD₅</u> : (concentration)	Average Monthly Limit is the most stringent of the following: = 30mg/L - may not exceed fifteen percent (15%) of the average influent concentration. Average Weekly Limit = 45 mg/L
<u>TSS</u> : (concentration)	Average Monthly Limit is the most stringent of the following: = 30mg/L - may not exceed fifteen percent (15%) of the influent concentration. Average Weekly Limit =45 mg/L

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Based on effluent concentration:

Monthly effluent BOD₅ and TSS mass loadings (lbs/day) were calculated as maximum monthly design flow (0.020 mgd) x Concentration limits (30 mg/L) x 8.34 (conversion factor) = mass limits of **5 lbs/day**.

The weekly average effluent mass loadings are calculated as 1.5 X monthly loadings = **7.5 lbs/day**.

Based on 85 percent removal requirement:

The maximum month effluent mass loadings for BOD5 and TSS are estimated at $0.020 \text{ mgd} \times 240 \text{ mg/L} \times 8.34 \times (1.0 - 0.85) = 6 \text{ lbs/day}$.

The weekly average effluent mass loadings are calculated as $1.5 \times$ the monthly effluent mass loadings. $1.5 \times 6 \text{ lb/day} = 9 \text{ lbs/day}$.

The more conservative 5 lbs/day monthly average and 7.5 lbs/day weekly average mass limits apply.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

Numerical Criteria for the Protection of Human Health

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

Narrative Criteria

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

Antidegradation

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality

than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the state Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

Critical Conditions

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

Mixing Zones

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention and control (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

Description of the Receiving Water

The facility discharges to the Columbia River which is designated as a Class A receiving water in the vicinity of the outfall. There are no other significant sources of pollutants in the immediate vicinity of the proposed outfall and mixing zone. Water quality of this class shall meet or exceed the requirements for all or substantially all of the following characteristic uses:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Surface Water Quality Criteria

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 colonies/100 mL maximum geometric mean
Dissolved Oxygen	90% of saturation
Temperature	20 degrees Celsius maximum
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts

Consideration of Surface Water Quality-Based Limits for Numeric Criteria

Pollutant concentrations in the discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. However, mixing zones have been authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC. The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of the PLUMES dilution model for the combined BHP/Port of Kalama effluent. The Port of Kalama effluent is diluted by a flow ratio of 10:1 (200,000 gal/20,000 gal) when it is combined with the 180,000 gallon BHP effluent. The acute dilution factors have been determined to be 46:1 for combined BHP and the Port of Kalama flows. The chronic dilution factors have been determined to be 150:1 for combined BHP and the Port of Kalama flows.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Columbia River is the seven day average low river flow with a recurrence interval of ten years (7Q10). The 7Q10 flow at river mile 72.2, approximately 20 miles downstream, is approximately 81,400 cubic feet per second. Ambient data in the vicinity of the proposed outfall was taken from the March 1992 Lower Columbia Bi-state Program, a single sample taken on October 10, 1991. Sample analysis is as follows:

TKN	0.2 ug/L	(U)
Ammonia-N	0.1 mg/L	
Hardness	62 mg/L as CaCO ₃	
Chloride	4.3 mg/L	
Fluoride	0.5 mg/L	(U)
Nitrate/Nitrite	0.5 mg/L	(U)
Sulfate	8.6 mg/L	
Cyanide	2.0 ug/L	(U)
Total Phosphorus	0.2 mg/L	(U)
Total Suspended Solids	6.3 mg/L	

U - Not detected. Value given is method detection limit.

The USGS "Water Resources Data, Oregon, Water Year 1994," referred to in the engineering report, the same low ammonia concentration and a lower hardness of 46 mg/L.

The impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, metals, and other toxics were determined as shown below using the dilution factors described above.

BOD--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

Temperature-- The receiving water temperature at the critical condition is 22°C and the maximum effluent temperature is estimated to be 18°C. Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, no effluent limitation for temperature was placed in the proposed permit.

pH--Because of the small amount of effluent relative to the large amount of dilution occurring in the receiving water at critical conditions, compliance with the technology-based limits of 6 to 9 will assure compliance with the Water Quality Standards for Surface Waters.

Temperature and pH--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitations for pH was placed in the permit and temperature was not limited.

Fecal coliform--With the technology-based limit of 400 colonies per 100 ml and a dilution factor of 1500, under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants-- The impacts of chlorine, ammonia, metals, and other toxics will be monitored in the combined effluent under the requirements of the BHP permit. Any contribution of these substances from the Port of Kalama facility is considered insignificant. If required monitoring of the combined effluent reveals there is a reasonable potential for the Port of Kalama effluent to contribute to water quality violations, monitoring requirements for these substances may be placed in the Port's NPDES permit.

MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring and testing schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department Permit Writer's Manual for treatment plants with less than 0.1 MGD average design flow. This frequency of monitoring is considered to be the minimum frequency to document compliance.

OTHER PERMIT CONDITIONS

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems, the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of local health departments.

Requirements for monitoring sewage sludge and record keeping are included in this permit. This information will be used by the Department to develop or update local limits and is also required under 40 CFR 503.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REVIEW BY THE PERMITTEE

A proposed permit was reviewed by the Permittee for verification of facts. Only factual items were corrected in the draft permit and fact sheet.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published in the *Columbian* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) in the *Columbian* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone (360) 407-6279, or by writing to the address listed above.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Class 1 Inspection--A walk-through inspection of a facility that includes a visual inspection and some examination of facility records. It may also include a review of the facility's record of environmental compliance.

Class 2 Inspection--A walk-through inspection of a facility that includes the elements of a Class 1 Inspection plus sampling and testing of wastewaters. It may also include a review of the facility's record of environmental compliance.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time

intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Daily Maximum Discharge Limitation--The greatest allowable value for any calendar day.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of rainfall-caused surface water drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

Monthly Average Discharge Limitation--The average of the measured values obtained over a calendar month's time.

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these

permits. NPDES permits issued by Washington state permit writers are joint NPDES/state permits issued under both state and federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--RESPONSE TO COMMENTS